CLAIMS

What is claimed is:

1. A polyurethane foam comprising less than about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam.
2. The foam of claim 1 wherein the foam passes the California 117 Burn Test.
3. The foam of claim 1 wherein the foam is a reaction product of one or more polyols, one or more isocyanates, one or more blowing agents, and one or more catalysts.
4. The foam of claim 1 wherein the melamine comprises less than about 8.5 weight percent based on the total weight of the foam.
5. The foam of claim 1 wherein the melamine comprises from about 5 to about 6 weight percent based on the total weight of the foam.
6. The foam of claim 1 wherein the additional flame retardant compounds comprise less than about 8 weight percent based on the total weight of the foam.
7. The foam of claim 4 wherein the additional flame retardant compounds comprise less than about 8 weight percent based on the total weight of the foam.
8. The foam of claim 1 wherein the additional flame retardant compounds comprise less than about 6 weight percent based on the total weight of the foam.
9. The foam of claim 5 wherein the additional flame retardant compounds comprise less than about 6 weight percent based on the total weight of the foam.
10. The foam of claim 1 wherein the weight ratio of melamine to the additional flame retardant compounds is in the range of from about 0.5 to about 2.0.
11. The foam of claim 1 wherein the weight ratio of melamine to the additional flame retardant compounds is in the range of from about 0.6 to about 1.5.
12. The foam of claim 1 wherein the weight ratio of melamine to the additional flame retardant compounds is in the range of from about 0.75 to about 1.25.
13. The foam of claim 1 wherein the weight ratio of melamine to the additional flame retardant compounds is about 1.
14. The foam of claim 3 wherein the reaction product comprises about 100 parts per hundred of the polyol.
15. The foam of claim 1 having a density of within the range of from about 0.9 to about 4.25 lb/ft^3, a 25% IFD in the range of from about 7 to about 150 $lb/50in^2$, and an air flow in the range of about 2.0 to about 5.5 ft^3/minute.
16. The foam of claim 1 having a density of within the range of from about 0.9 to about 1.5

lb/ft^3, a 25% IFD in the range of from about 7 to about 54 lb/50in^2, and an air flow in the range of about 4.0 to about 5.5 ft^3/minute.

17. The foam of claim 1 having a density of within the range of from about 1.6 to about 4.25 lb/ft^3, a 25% IFD in the range of from about 11 to about 150 lb/50in^2, and an air flow in the range of about 2.0 to about 4.0 ft^3/minute.
18. The foam of claim 1 wherein the melamine is ground melamine.
19. The foam of claim 18 wherein the ground melamine has a volume average particle size distribution of 100% <= about 74 microns, 75% <= about 19.25 microns, 50% <= about 12.28 microns, 25% <= about 6.84 microns, 0% <= about 0.83 microns.
20. The foam of claim 1 wherein the additional flame retardant compound is a pentabromodiphenyl oxide blend halogenated flame retardant.
21. The foam of claim 1 wherein the additional flame retardant compound is phosphorus-bromine.
22. A slab stock process for making a polyurethane foam comprising adding less than about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam.
23. The process of claim 22 wherein the melamine is ground melamine.
24. The process of claim 23 further comprising pre-blending the ground melamine with a polyol under high shear prior to foaming.
25. The process of claim 24 wherein the pre-blend is about a 1:1 weight ratio of melamine to polyol with a viscosity of about 3600 cps at 75°F and with no visible agglomerations.
26. The process of claim 24 wherein the high shear is applied via an in-line shear pump.
27. The process of claim 26 wherein the pre-blend is recirculated through the shear pump for a minimum of about 2 hours at about 300 lbs/hr flow rate and temperature of about 21 °C.
28. The process of claim 24 further comprising agitating the pre-blend to maintain the melamine suspension therein prior to foaming.
29. A carbon dioxide frothing process for making a polyurethane foam composition comprising adding less than about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam.
30. The process of claim 29 wherein the melamine is ground melamine.
31. The process of claim 30 further comprising pre-blending the ground melamine with a polyol under high shear prior to foaming.

32. The process of claim 31 wherein the pre-blend is about a 1:1 weight ratio of melamine to polyol with a viscosity of about 3600 cps at 75°F and with no visible agglomerations.
33. The process of claim 31 wherein the high shear is applied via an in-line shear pump.
34. The process of claim 33 wherein the pre-blend is recirculated through the shear pump for a minimum of about 2 hours at about 300 lbs/hr flow rate and temperature of about 21 °C.
35. The process of claim 31 further comprising agitating the pre-blend to maintain the melamine suspension therein prior to foaming.
36. The process of claim 31 further comprising filtering the pre-blend prior to entry into a mixing head.
37. The process of claim 36 wherein the filter has a hole size of about 300 microns.
38. The process of claim 31 further comprising filtering the foam composition after exiting a mixing head.
39. The process of claim 36 further comprising filtering the foam composition after exiting the mixing head.
40. The process of claim 39 wherein the filter has a hole size about less than or equal to the width of the discharge slot on a gate bar for laying down the foam composition.